

NOTES

SIR L. PLAYFAIR asked the Secretary to the Treasury on Monday whether any answer had been given to the application of the Marine Biological Association for aid in establishing a station on Plymouth Sound to investigate the marine fauna and flora, especially in their relation to the food-fishes of these islands, and for which station 8000*l.* had already been subscribed from private resources. Sir H. Holland in reply stated that this application had received much consideration both from the present Government and its predecessors, and a letter was written to the association a fortnight since in which the Treasury undertook in general terms to ask Parliament for an annual grant for a term of years in aid of their undertaking, on condition that their work should be carried on in full concert with the Scotch Fishery Board, to whom Parliament has already granted considerable sums for similar objects. In the view of the Government these two bodies must be considered as working together towards the common benefit of the fishermen and fish consumers of the three kingdoms. On the whole this is satisfactory. No doubt it is desirable to form a central authority for dealing with fishery statistics and the scientific problems of fisheries for the three kingdoms. But this will take time; and in the meanwhile it is to be expected that the Marine Biological Association will receive Government aid so as not to delay its useful work. The condition as to common action and harmony with the Scotch Fishery Board is very proper and is not likely to give rise to any difficulty. The leading and we believe only scientific member of the Scotch Fishery Board, Prof. Cossar Ewart, is a member of the Biological Association, and will no doubt co-operate in every way with that body. The Marine Biological Association is now a very large and weighty body, comprising all British zoologists. It is not to be expected that it should be controlled in any way by the Scotch Board, nor are we sure it would desire to interfere with Prof. Ewart's valuable researches. But there need be no difficulty, we should think, about consultation and harmonious action. With the expected Government aid the Biological Association will be able to spend the greater part of its 8000*l.* on building and equipping a first-rate laboratory on the splendid site granted to it by the War Office. It will be able to carry out a definite series of investigations under the guidance of Profs. Moseley, Lankester, Günther, Huxley, and other leaders of the Association, and may be expected, step by step, to build up that knowledge of sea-fishes which is so much needed. The work to be done will no doubt be thoroughly systematised and apportioned to different workers. It should be remembered that the Marine Biological Association is not local: it aims at carrying on work on various parts of the English, Scotch, and Irish coasts, and in time, indeed, may become in all respects a national Association.

THE *Astronomische Gesellschaft* meets this year at Geneva from August 19 to 22. The first meeting will be held at 10 a.m. on the 19th, in the hall of the Aula of Geneva University. Geneva has been chosen for the eleventh meeting of this Association on account of its central situation. Although founded at Heidelberg twenty-two years ago, the Association includes among its members astronomers of nearly all civilised countries.

THE Paris students are making extensive preparations for celebrating the 100th birthday of M. Chevreul, the veteran chemist, who has been a member of the Academy of Sciences since 1826.

THE third session of the International Geological Congress, which was postponed last year on account of the cholera on the Continent, is fixed to be held this year on Sept. 28 at Berlin, under the honorary presidency of the veteran geologist of Rhine-

land, Dr. H. von Dechen. The President of the Organising Committee is Prof. Beyrich, and the General Secretary M. Hauchecorne, 44, Invalidenstrasse, Berlin.

To meet the requirements of ladies going up for the Preliminary Scientific or the Intermediate or Full B.Sc. examination at the University of London, under the new regulations, the Council of Bedford College, York Place, Baker Street, London, have arranged for a complete course of instruction in biology, to commence next October. Mr. A. G. Bourne will give lectures in animal biology, and will also have classes for demonstration. Mr. A. W. Bennett will lecture on vegetable biology, and Miss Mary Forster, of Newnham College, will give practical demonstrations twice a week. Provision is also made for adequate instruction in other branches of science required for the same examinations—viz. mathematics, physics and chemistry, the two latter including laboratory work.

THE secretary of the Royal Horticultural Society writes to say that the council of his society are prepared to offer their co-operation and assistance to such of the colonies as may desire as a feature of their courts examples of the indigenous flora in vestibules or plant-houses. The council, believing that collections of ornamental and economic plants in a growing state, and of fruits, would be of much interest and value, will be ready to give advice and practical assistance in preparing, arranging, and carrying out such illustrations, to any of the colonies who may apply to them.

THIS season the rains have set in early and with unusual force in Southern India and Burmah, and about the usual time in Lower Bengal, while in Western India they have been later in commencing and are deficient in amount. Thus far, therefore, Mr. Blanford's forecast of this year's south-west monsoon, founded on last winter's snowfall on the Himalayas, has been amply justified.

AN invention, which it is anticipated will be of importance in future warfare, was on Monday night exhibited in the grounds of the Albert Palace by Mr. Eric S. Bruce, the inventor. It consists of the application of electric lighting to balloons, by means of which signals may be flashed at night over very wide areas. Before giving a practical demonstration of the working of his invention, Mr. Bruce delivered a brief lecture in the concert hall of the Albert Palace, in which he stated the results of his experiments and explained the manner in which he had arrived at them. The invention consists of an ordinary balloon made of a material as translucent as possible (in the case of the one at present on exhibition the material is cambric) in which are fixed a number of incandescent lamps. The balloon is a captive one, and the rope which secures it is also utilised for conveying the electric current to the lamps inside the balloon. The Morse system of telegraphy is employed for the signalling, which illuminates the balloon with flashes of light of longer or shorter duration. The invention dates back only two months, and the experiments were made with a large balloon for the first time last night, and were completely successful. It is proposed to continue the exhibitions of signalling for a month. The chief obstacle to be overcome in introducing the electric light into the balloon was that occasioned by the highly inflammable nature of the gas with which the balloon is inflated. This has, however, been successfully surmounted. During the evening several sentences, including "God Save the Queen," "Rule Britannia," and "Health and Happiness to Princess Beatrice," were flashed from the balloon.

ON Thursday evening last, July 16, Finsbury Technical College was *en fête*, the students having organised a *conversazione*

to mark the conclusion of the work of the session. The programme was of a very varied character, including, in addition to a large number of scientific items, a concert given in the Chemical Lecture Theatre, and a play and dance in the large hall of the Middle Class Schools in Cowper Street, which had been kindly lent for the occasion. The evening's entertainment proved most successful in every way, great credit being due to the secretaries of the various Committees, and especially to Mr. H. Newman Lawrence, the general and organising secretary, for the efficient manner in which all the arrangements were carried out. Most of the rooms were filled with exhibits of apparatus, the whole building being lighted by electricity, and the machinery, workshops, &c., in full action. In the course of the evening a lantern exhibition of polariscopic objects was given in the Physical Lecture Theatre by Prof. S. P. Thompson, who had also lent for exhibition various telephones, a phonograph, an "electric light compass" for detecting the direction of a current in a wire, a "cymatograph" (an instrument for compounding the resultant of two parallel, simple, harmonic waves), and a collection of historical electric-telegraph apparatus. In the Chemical Department Prof. Meldola exhibited a series of new organic products obtained in the course of recent researches. Messrs. Hopkins and Williams exhibited a series of chemical preparations. A large number of microscopes with objects were exhibited in one of the rooms by Mr. Beck. Amongst the electrical exhibits were a model telpher line by the Telpherage Company, the valve telephone lent by the New Telephone Company, Cardew's voltmeter lent by Messrs. Pater-son and Cooper, a selection of ammeters, switches, incandescent lamps, &c., lent by Messrs. Woodhouse and Rawson and by Mr. Swan; and accumulators, dynamos, &c., made by the students of the Electrical Engineering Department. In the Trade Classes Department Mr. C. T. Millis exhibited some new geometrical models and students' paintings; models, and drawings were exhibited by the Applied Art Department. It is proposed to form an "Old Students' Association" in connection with the College, and the success which attended the first attempt at a public entertainment has encouraged the professors and students to make an annual institution of it.

MR. HELE SHAW has been unanimously appointed to the new Chair of Engineering in University College, Liverpool. Mr. Shaw began his career by taking the Senior Whitworth Scholarship in 1876, which was followed by many other honours while pursuing his engineering studies. In the present year he was awarded the Watt Gold Medal and Telford Premium by the Institution of Civil Engineers.

ACCORDING to the *Times* Roman correspondent an interesting discovery, illustrating the commerce and the luxury of ancient Rome, has been made close to Monte Testaccio and the English cemetery. The whole of the district to the west of the Aventine outside the Porta Tregemina was occupied by granaries and warehouses for the storage of imports of all kinds. Between the northern side of Monte Testaccio and the Tiber there still exist colossal remains of the great emporium built by Marcus Emilius Lepidus and Emilius Paulus nearly 200 years before the Christian era. In the year 1868 a considerable portion of the quays was discovered, together with some 600 blocks, many of them of large size, of rare, variegated marbles of all kinds, lying just where they were landed from the galleys which had brought them from Numidia, the Grecian Islands, and Asia Minor fifteen centuries ago. Now, in the course of the building operations in this locality, two warehouses have been discovered, one filled with elephants' tusks and the other with lentils. It is curious to find such products stored side by side; but as bags of lentils were sometimes shipped as ballast, they may have served that purpose. The discovery would have been a very valuable one if, unfortunately, the ivory had not been much decayed.

WE have received from the Bureau des Longitudes ephemerides of circumpolar and moon culminating stars for the present year and an account of the determination of longitude between Paris and Bregenz, a town situated near the western boundary of the Austro-Hungarian Empire; a high value is claimed for the result.

MR. CLEVELAND, the President of the United States, has given his assent to the nomination as American Ambassador at Rome of Mr. Stallo, a German by birth, but long since a naturalised American citizen. He devoted himself exclusively to scientific pursuits in his younger years, but was persuaded by his friend Draper to join the Bar, where he distinguished himself without relinquishing his former avocation. He is the author of several scientific works; the last was on "The Concepts and Theories of Modern Physics," noticed in *NATURE*, vol. xxiv. p. 321.

OWING to the frequency of tornadoes in some parts of the valley of the Mississippi, we understand that a number of caves have been bored in some parts of the country to afford shelter to travellers chancing to meet such dangerous phenomena on their way.

ON July 10, at about noon, a wonderful mirage was seen on Lake Wetter, in Sweden, by a number of people between the villages of Fogelsta and Vadstena. A small island in the lake appeared as if covered with the most gorgeous flora and tall gigantic trees, forming great groves, between which buildings having the appearance of the most splendid palaces were seen. The Sandö, another little island, seemed to rise out of the sea many times its actual height, its sandy shores looking like lofty castellated walls. It had the exact appearance of a mediæval fortress enclosed by four walls. Two other little islands, Åholmen and Risön, appeared also as lofty towers above the water. The mirage lasted for nearly half an hour, when it disappeared somewhat rapidly.

MR. CLEMENT L. WRAGGE is arranging for the establishment of a meteorological station in Northern Queensland and New Guinea. He hopes to establish an observing station at Port Moresby. An assistant will carry on the work of the Torrens Observatory. Mr. Wragge is also arranging for the continuance of his observatory on Mount Lofty.

ON Tuesday morning last week an earthquake occurred in Eastern and Central Bengal which is said to have been the severest one experienced by the inhabitants for forty years. The shocks lasted for nearly a minute. In Calcutta the houses rocked and cracked and the plaster fell in large quantities. There was general consternation, the people all rushing out of doors. A wave was raised in the river like a bore, causing some anxiety with respect to the shipping. Luckily no accident occurred, and no damage was done beyond the cracking of the walls of some old houses; but had the shocks lasted some seconds longer the city would probably have been laid in ruins. Some of the up-country stations were less fortunate. At Serajunge a chimney belonging to some jute mills fell. In many other places some of the houses fell and people were killed. Twenty-five deaths are reported to have occurred at Aheripore, five at Bogara, eleven at Azingunge, and several at Dacca. The following morning another shock was felt in Cashmere which did some injury. According to the latest reports the earthquake caused altogether seventy deaths in Bengal.

A SHOCK of earthquake occurred at Velez-Malaga on Monday night last week, but no damage was caused. A smart shock of earthquake occurred at Smyrna at 1.30 a.m. on July 15. The vibration was also slightly felt at Chesmé.

ON June 30, at about 10 a.m., after a severe thunderstorm with heavy rain had passed over Stockholm, a little bright

cloud was seen sailing in an easterly direction about 30° above the horizon, which at about 11 o'clock was suddenly illuminated by the intensest bright forked lightning, illuminating the cloud and the clear sky for upwards of half an hour, without any thunder being heard. The light was brighter than the electric light. Similar phenomena are very rare in these latitudes, and are believed to augur a good harvest. On the 12th inst. another phenomenon, perhaps of volcanic origin, was observed at Norrköping, the water in the river being seen suddenly to rise, and three large waves with frothy crests to roll thunderingly up the stream. After the lapse of a few minutes three smaller followed, of which the first only was froth-crested. Five minutes later it was observed that the water in the river had fallen quite four inches. The waves did not reach as far as the shore, and no earthquake or subterranean noise was felt or heard. After a quarter of an hour the river had resumed its wonted appearance. The phenomenon, it is suggested, may also have been caused by a sudden subsidence in the river basin.

A MOVEMENT is on foot in Christiania, at the instance of the Society for the Promotion of the Norwegian Fisheries, for the establishment in the Christiania fjord, near Dröbak, of a biological station for the hatching of sea-water food-fish and salmon, in consequence of the great success of other stations along the coast. In a report on this subject by Herr A. Landmark, Chief Inspector of the Norwegian Fisheries, he draws special attention to the great development of the salmon and trout fisheries of Great Britain and Ireland, in consequence of the care and attention paid to them in this country.

UPSALA UNIVERSITY has just received a somewhat valuable present in the shape of a collection of Scandinavian, Icelandic, and Greenland eggs, specially remarkable for its completeness and excellent preparation. Among some of the rarest are eggs of *Tringa islandica*, *Phalaropus platyrhynchus*, and *Lestris pomerina*.

AN automatic bichromate battery has recently been produced by Messrs. Woodhouse and Rawson, the dimensions of which are only $7\frac{1}{2}'' \times 1\frac{1}{4}'' \times 8\frac{1}{2}''$, and weight 6 lbs. One charge will light a 5-candle power lamp for about two hours. The electrodes are attached to an ebonite plate supported in position over the liquid by the upper edge of the containing case, within which is placed a more shallow case, constituting the liquid reservoir. The reservoir itself is free to move up and down without any possibility of disarrangement, and rests upon a small roller connected with a lever at the bottom of the case. By moving this latter the liquid reservoir is raised, and its contents "immerse" the electrodes. A ratchet arrangement prevents disconnection being made until the battery is out of use. By this arrangement, requiring the use of one hand only, an accurate regulation of the electrodes can be obtained. Further, it is easy, when using ordinary bichromate solution, to raise or lower the liquid reservoir from time to time while the battery is in use, and so displace the gas which gathers upon the surface of the electrodes in consequence of their polarisation.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus* ♂) from India, presented by Mrs. Cooper; an Erxleben's Monkey (*Cerco-pithecus erxlebeni*) from West Africa, presented by Miss Peers; a Blue-fronted Amazon (*Chrysotis aestiva*) from South America, presented by Lady Kensington; a Rendall's Guinea-fowl (*Numida rendalli*) from West Africa, presented by Mr. F. Le Sueur; three Razorbills (*Alca torda*), eight Puffins (*Fratercula arctica*) from Ireland, presented by the Rev. Ed. Weldon; a Long-eared Owl (*Asio otus*), European, presented by Mr. F. Allen; three Angulated Tortoises (*Chersina angulata*), an Areolated Tortoise

(*Homopus areolatus*) from South Africa, a Black Sternotherus (*Sternotherus niger*) from West Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; two King Vultures (*Gypagrus papa*) from Tropical America, deposited; an Axis Deer (*Cervus axis* ♂), a Duyker-bok (*Cephalophus mergens* ♂), born in the Gardens.

OUR ASTRONOMICAL COLUMN

THE ASTRONOMISCHE GESELLSCHAFT. — The first and second parts of the twentieth year of the *Vierteljahrsschrift*, issued by this Society, have been published as a single number. It contains reports from some thirty of the Continental observatories, detailing the astronomical work accomplished during the year 1884, and a Report from the Bureau of Calculation at Berlin, on the part of the Transit of Venus Commission, describing the progress made in the reduction of the observations of the transit of 1882. Dr. B. A. Gould, with the authority of the Government of the Argentine Republic, has offered the stereotype plates of the Catalogue formed from the Cordoba zones, to the Society, the gift carrying with it the sanction of the Government to a new edition being printed therefrom at such time as may be desirable. All the errors detected up to the time of Dr. Gould's communication have been corrected on the plates. It is almost needless to add that this valuable gift has been accepted by the Society, who will preserve the collection of plates at Leipsic. — The death is announced of Dr. T. Clausen, late director of the Observatory of Dorpat; amongst many other important contributions to astronomical science, his masterly discussion of the observations of Lexell's comet of 1770 will be remembered; his prize-memoir thereupon published in the *Astronomische Nachrichten* elicited from Bessel the eulogising remark — "Welche herrliche, oder richtiger, meisterhafte Arbeit ist die von Clausen über den Cometen von 1770; sie ist eine Leistung unsere Zeit, welche unsere Nachkommen ihr anzurechnen nicht vergessen werden."

The next meeting of this Society will be held at Geneva, from August 19 to 22, under the presidency of Prof. Auwers.

THE NEW COMET. — Mr. Barnard of Nashville, U.S., having notified his discovery of a small telescopic comet, on July 7, to Prof. Pickering, it was observed at Harvard College on July 9, the resulting position being —

h. m. s.	h. m. s.	h. m. s.
July 9, 12 33 0 M.T.;	R.A. 17 17 48.4;	Decl. - 6 1 8

Prof. Millosevich communicates the following observations made at the Collegio Romano, in Rome: —

h. m. s.	h. m. s.
July 12, 9 56 29;	Rome M.T.; R.A. 17 12 52.35;

Decl. - 7 32 15.6.

He remarks that the comet had a nucleus 11m. in the preceding part of the small nebulosity.

The elements of the comet's orbit are yet uncertain, from the case not being a favourable one for calculation. The Dun Echt Circular of July 16 has an orbit computed by Mr. Chandler from observations between July 9 and 11; the resulting date of perihelion passage is May 16. But on combining the above observations on July 9 and 12 with one on July 15, made by Col. Tupman at Harrow, it would appear that the comet may not arrive at perihelion till September. In this uncertainty we defer printing elements till next week. In any case the comet can hardly be one possessing much interest. The theoretical intensity of light seems to be decreasing.

TUTTLE'S COMET. — At the time of writing, no ephemeris to facilitate the re-observation of this comet at its approaching perihelion passage has, to our knowledge, been published, beyond the few positions which have been given in this column, on the assumption that the perturbations during the actual revolution have not been very sensible. If it should prove that no computation of the perturbations has been effected, it will be desirable to make a close examination of the north-eastern heavens during the absence of the moon in August, and just before morning twilight. The period of revolution of this comet at its last perihelion passage in December 1871, was 5045 days, which, without perturbation, would indicate September 24 as near the date of next perihelion passage.